

AMENDMENTS TO THE CLAIMS

Please **CANCEL** claims 1, 3, 4, 6, 7, 9, 11, 13, 15, 17-19, and 22 without prejudice or disclaimer.

This listing of claims will replace all prior versions, and listings, of claims in the application.

1 – 9. (Canceled)

10. (Previously Presented) A control system for supplying a fuel to a fuel cell stack that includes an anode and a cathode and generates electrical energy by a chemical reaction of the fuel, comprising:

a fuel storage unit that stores the fuel to be supplied to the fuel cell stack;

a diluent storage unit that stores only a diluent that is a byproduct of the chemical reaction in the fuel cell stack;

a sensor that detects a concentration of a fuel in a fuel mixture solution and outputs a signal according to the concentration; and

a control unit that receives the signal from the sensor and controls the fuel mixture solution,

wherein the diluent comprises H_2O , and

wherein the sensor comprises:

an external electrode;

an internal electrode; and

a sensor member that fills the space between the internal electrode and the external electrode,

wherein the sensor member changes volume thereof depending on the concentration of the fuel mixture solution.

11. (Canceled)

12. (Original) The control system of claim 10, wherein the sensor is manufactured using polymeric ion exchange membrane or resin.

13. (Canceled)

14. (Previously Presented) The control system of claim 10, wherein the sensor comprises an electronic circuit that outputs an electrical signal depending on a change in the volume of the sensor member.

15. (Canceled)

16. (Previously Presented) The control system of claim 12, wherein the polymeric ion exchange membrane or resin is one of polystyrene sulfonic acid, poly ether ether sulfone sulfonic acid, perfluorinated sulfonic acid polymer, polyimide sulfonic acid, sulfonated polyolefin and sulfonated polysulfane.

17 – 19. (Canceled)

20. (Previously Presented) A sensor for a fuel concentration in a fuel cell comprising:
an external electrode;
an internal electrode; and
a sensor member that fills the space between the internal electrode and the external electrode,
wherein the sensor member changes volume thereof depending on a concentration of fuel in fuel mixture, and
wherein a signal is output when an expansion coefficient of the sensor is not within a reference range.

21 – 22. (Canceled)

23. (Previously Presented) The control system of claim 10, wherein the signal is output when an expansion coefficient of the sensor member is not within a reference range of expansion coefficients of the sensor member.